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Are you over-utilizing and under-servicing your energy system?

Network power—*without power*—would leave you without a network. It's a necessity, not unlike basic electricity needed to power your home or fuel to power your vehicle. But most companies don't think about what goes into making a network run once it actually does.

In a standard, central offi ce power plant, there could be multiple power rooms, each containing rectifi ers, distribution bays, controllers and battery strings. What happens when one or more units malfunction due to over-utilization or neglect?

In an industrial environment, operational integrity is imperative. Businesses should consider the cost of an outage—*downtime, lost productivity and the customer impact*—as well as potential safety hazards. It is important not to have a false sense of security and later fi nd an outage could have been prevented by properly safeguarding your network. How acceptable is the loss of your network power for any period of time?

A fountain of youth for power equipment?

As part of comprehensive service performed by an expert, routine maintenance can be invaluable to businesses that depend on revenue generation from the reliability of power systems. That's because alarming, plant capacity, overloaded breakers or fuses and overloaded AC panels can have a direct impact on network reliability. While not a magical solution, power plant maintenance can extend the life of network equipment, reducing the need for premature replacements—*and therefore, reducing the overall cost of powering the network*.

Evaluations, maintenance and adjustments should be part of any maintenance program. When performed by an experienced technician, potential problems can be caught before they do serious damage to the power equipment. Thermal scanning can be used to help identify overheating problems, such as overloaded busbars, undersized cables or loose connections.

Power plant capacity and irregularities also should be checked. For example, you should check the load against the capability and verify isolated ground planes and ground windows for

contamination.

Always verify physical characteristics, operating capabilities and functionality when checking equipment, and be sure to compare installed equipment capacities with existing demands. Table I shows what elements should be maintained for batteries, power plants and DC Power Boards.

What happens when good systems go bad?

When systems are not properly maintained, results can range from simple, short-term outages, to explosions—*like the battery room explosion in the opening photo*—and expensive damages. Typical issues that can affect operations and reliability are loose or damaged connectors, defective circuit breakers, battery leakage, low-battery levels, improper ventilation, and wiring errors. These all can be detected during routine maintenance—
which includes thermal scanning and calibration of power plant connections.

In the event of a commercial AC failure, diesel generators, fuel cells and UPS systems are designed to provide temporary AC power, allowing time for commercial AC to be restored. Regularly performed maintenance services with these back-up power systems ensures they are ready to engage should commercial AC power fail. Fuel is checked, visual inspections performed and systems are started to make sure they are in top running condition.

Similarly, in the event of a DC power plant failure, batteries provide instantaneous temporary DC power, allowing time for repairs to the power plant. Batteries are subject to numerous failures such as deteriorated power capacity, swelling, cracking, leaking, corrosion and releasing explosive gases. If the room in which the batteries are housed is not properly ventilated, the batteries overheat, the alarm fails and explosions occur.

Regularly performed maintenance services, such as taking critical battery output measurements, verifying battery connections and conducting visual inspections, can circumvent these types of failures by identifying problems well in advance of them becoming serviceaffecting events.

Low electrolyte and water levels reduce battery life and reliability. Loose and corroded connections can sometimes lead to serious overheating-related problems. A periodic maintenance program that includes thermal imaging services will quickly identify overheated connections that can easily be fi xed before a more serious event occurs.

What's next?

The fi rst step for power plant operators to take is to identify a service provider that is willing to work closely with them in providing scheduled, preventive maintenance services. Using qualifi ed engineers and technicians is critical to help minimize the risk of back-up equipment failure in the event of power interruptions. Documented, extensive fi eld experience is a good indicator that a service provider understands your needs and can dispatch qualifi ed personnel to your site.

The service provider's initial goal should be to help outline the entire package of required preventive maintenance activities, recommend a preventive schedule or multiple schedules of necessary services and provide complete documentation of findings and further recommendations each visit.

In order for them to deliver this type of comprehensive plan, the service provider must completely understand your current and future power demands and how the equipment you currently have will accommodate those demands. Your service provider also should be able to evaluate the working capability of your existing equipment with any new equipment you may need now or in the future.

Keep in mind that a service provider with multiple geographical or regional sites means that technicians are never too far away from your site(s)—*and are ready and able to deploy for any emergency affecting your power service.*

Is that bomb ticking?

Can you afford for your systems to go down in a crisis? And, how well do your competitors maintain their power equipment?

Power systems often are taken for granted until there is a loss of power and subsequent service is lost to valuable customers. Failures can happen at any time, with sometimes devastating results. Early detection can identify small problems before they become major repair costs. Take the next step. Don't wait for that "bomb" to go off. Start your preventive maintenance today.

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